

pr.23900

DATA FOR 2020 (in progress)

pr.23900

"Ivan Rogov"

"Mitrofan Moskalenko"



Universal landing ship-helicopter carrier (UDC) of the 1st rank of the far sea zone. The development of the UDC project to replace the Mistral-class UDC, the construction of which in France for the Russian Navy was terminated in 2014, was carried out by several Russian design bureaus: the Priboy project was developed by the Nevskoye Design Bureau, the Lavina project - by the Krylov State Research Center. But in fact, the Zelenodolsk Design Bureau project was selected for construction in 2019-2020.

The Zelenodolsk Design Bureau project was first shown at a presentation to the President of Russia on January 9, 2020. In March 2020, the Zaliv Shipyard (Kurch) began purchasing metal for the construction of two Project 23900 ships ( [source](#) ). According to sources, a keel-laying ceremony for the new ships was planned for April 28, 2020 ( [source](#) ). On May 23, 2020, the media reported that the Russian Ministry of Defense had signed a contract for the construction of two UDCs with the Kerch shipyard "Zaliv" for a total of about 100 billion rubles.

On July 20, 2020, in the presence of the President of Russia, the official laying of two Project 23900 UDCs, Ivan Rogov and Mitrofan Moskalenko, took place at the Zaliv Shipyard in Kerch. According to the illustrations at the laying ceremony, the appearance of Project 23900 at the time of laying was slightly different from the appearance of the project shown in January 2020.

The ship is designed to carry out landing operations at a great distance from home shores, and can also be used as a command ship during naval or mixed operations of dissimilar forces.



Image of the Project 23900 universal landing ship from the official keel-laying ceremony at the Zaliv Shipyard in Kerch on July 20, 2020 (Zelenodolsk Design Bureau).

Author: [DIMMI](#)

Created: 27.07.2020 22:02:55

Comments: 1

[READ THE FULL ARTICLE >](#)Complex 3K-14 / S-14 Kalibr, missiles 3M-54 / 3M-14 - SS-N-27 / SS-N-30 SIZZLER

DATA AS OF 2022 (standard replenishment)

Complex 3K-51 "Biryuza", missile P-900 / 3M-51 "Alpha" - SS-N-27A SIZZLER

Complex 3K-54P / P-10 "Biryuza-PL", missile 3M-54 / 3M-54E1 / Club-S - SS-N-27B SIZZLER

Complex 3K-14 / S-14 "Kalibr-PL" / "Kalibr-NK", missile 3M-14E / 3M-14 - SS-N-30 SIZZLER



Universal shipborne firing system / missile system with cruise missiles. The cruise missiles of the system were developed by the Novator Design Bureau (Yekaterinburg). The development of the 3M-51 Alpha anti-ship cruise missile with an additional warhead stage for launching from a submarine torpedo tube was started by the Novator Design Bureau as part of the Biryuza R&D project based on the 3M-10 cruise missile of the [3K10 Granat](#) system in 1983. In 1993, a mockup of the 3M-51 Alpha missile was demonstrated at an arms exhibition in Abu Dhabi (UAE) and at the MAKS-93 air show in Ramenskoye.

After 1991, the concept of the complex was changed - the development was reoriented to the creation of a missile weapon complex for export deliveries as a missile system / complex "Club" with missiles of different types with basing options both for submarines - Club-S (Submarine), and for surface ships - Club-N (NAVY). Based on the 3M-51 missile, while maintaining the purpose and main design features, the 3M-54 anti-ship missile was created. The 3M-14E missile was developed before 2004 on the basis of the 3M-10 missile of the [3K10 Granat](#) complex.

The first stage of state tests of the Kalibr complex and the 3M-14 missile was carried out by the Novator Design Bureau in 2009-2011. (Almaz-Antey Air Defense Concern, *source* - *Annual Reports 2009, 2010, 2011* ). In 2011, preparations began for testing the Kalibr complex with the 3M-14 missile from the Severodvinsk submarine, Project 885 (Almaz-Antey Air Defense Concern, *source* - *Annual Report 2011* ).

In the Russian Navy, the 3M-54 and 3M-14 cruise missiles are used as combat assets of the Kalibr-NK and Kalibr-PL missile complexes, along with missiles of other types (91R1, 91RT2, [Onyx](#) ).

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[arma37@tank7](#)[VA-111 Shkva](#)

- Identification:
- 3M-51 Alpha - anti-ship missile with a supersonic warhead stage for the USSR Navy.
  - 3M-54 / 3M-54E - anti-ship missile with a supersonic warhead, export version - conventional and shortened and version for the Russian Navy.
  - 3M-54E1 - anti-ship missile with an enhanced warhead, but without a supersonic warhead, export version.
  - 3M-14E - cruise missile for firing at ground targets, shortened export version.
  - 3M-14 - cruise missile for firing at ground targets, full-fledged version for the Russian Navy.



Missile type 3M-14 of the Kalibr complex, published on 09.11.2015 (collage of the Russian Ministry of Defense, [source](#) ).

Author: [DIMMI](#) Created: 10/19/2014 11:49:21 PM Comments: [11](#) [READ THE FULL ARTICLE »](#)

APR-3 Oryol

DATA AS OF 2011 (standard replenishment)  
APR-3 "Orel" / "Orel-M" / product 473  
APR-3E "Orel-M"  
APR-3M / APR-3ME "Orel-M"  
★★★★

Air-launched anti-submarine rocket torpedo. Developed by a cooperation of enterprises headed by NIIPGM (later renamed to GNPP "Region", now part of the Tactical Missile Armament Corporation) on the basis of and in parallel with the [APR-2](#) torpedo . Chief Designer - M. Lisichko. Development began in 1969. During the development process, the project was repeatedly adjusted and eventually entered State testing as the "Orel-M". Development of the torpedo was completed in 1990. The APR-3 "Orel-M" torpedo was accepted into service in 1991 (in 1990 according to other data).



APR-3EUD torpedo on display at the IMDS-2003 exhibition, St. Petersburg (photo by A.V. Karpenko, "Nevsky Bastion").

Author: [DIMMI](#) Created: 16.02.2011 21:34:17 Comments: [2](#) [READ THE FULL ARTICLE »](#)

Complex P-700 Granit - SS-N-19 SHIPWRECK

DATA AS OF 2022 (standard replenishment)  
P-700 "Granit" 3K45 complex, 3M45 missile - SS-N-19 SHIPWRECK

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**Granit-2 complex 3K45-2 / ROC "Granitit", 3M45-2 missile**

Anti-ship cruise missile. Development of the complex was started by NPO Mashinostroyeniya (OKB-52) of V.N. Chelomey (since 1984, General Designer - G.A. Efremov) in 1969. Chief Designer - V.I. Patrushev (until 1977), starting from the end of 1977 - V.A. Vishnyakov, starting in 2003 after the creation of the NPO Mashinostroyeniya Directorate for the Granit cruise missile - A.A. Malinin (at least until 2010), as of 2012-2013, the chief designer in this direction is Konstantin Danilov ( [source](#) ).

The development of the Granit missile was a continuation of work on the creation of an underwater missile with a range of 400-600 km and a flight speed of 3200-3600 km/h of the P-500P type (carrier - Project 688 SSGN). In connection with the strengthening of the air defense of US Navy aircraft carriers with F-14 fighters with Phoenix missiles and a multi-channel radar, it was supposed to strike with a group of at least 20 anti-ship missiles to achieve guaranteed destruction. According to the decision of the Military-Industrial Complex under the Council of Ministers of the USSR dated April 8, 1966, in the first quarter of 1967, OKB-52 was to submit a preliminary design for an anti-ship missile as part of the Granit R&D ( [source](#) ). The development of the preliminary design showed that a missile with the specified performance characteristics would be 13 m long and the solid propellant rocket engine would not be able to serve as a cruise engine. By the decision of the Military-Industrial Commission under the Council of Ministers of the USSR of October 21, 1968, changes were made to the performance characteristics while maintaining the requirement to fit within the dimensions of the Malachite anti-ship missile launcher. These performance characteristics formed the basis for the Resolution of the Council of Ministers of the USSR No. 539-186 of July 10, 1969 on the Granit R&D project to create the complex ( [source](#) ), the start date for joint testing of the complex was set for the second quarter of 1973.

The Granit R&D project envisaged the creation of an anti-ship missile with autonomous (without interaction with the carrier) selection of the main target in a formation of ships and a universal launch - surface or underwater. The draft design was released in 1969 and approved in 1970 (?).

In 1972, in Severomorsk, a demonstration of the Granit missile and space reconnaissance satellites created in the interests of the Granit complex was held for the USSR leadership - General Secretary of the CPSU Central Committee L.I. Brezhnev and Minister of Defense Marshal A.A. Grechko ( *history - Perm Powder Bastion* ).

Special thanks to user SHARK ( <http://militaryrussia.ru/forum> ) for assistance in preparing materials. Sometimes in sources the missile was called P-50.



Successful launch of the 3M45 Granit missile from the nuclear-powered missile cruiser Project 11442 Pyotr Velikiy on September 19, 2017 (video still from the Russian Ministry of Defense).

Author: [DIMMI](#)

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## P-6 Complex - SS-N-3C SHADDOCK

**DATA AS OF 2013 (standard replenishment)**

**P-6 complex, 4K48 / 4K88 missile - SS-N-3C SHADDOCK**



Anti-ship cruise missile for submarines. Developed on the basis of the P-5 cruise missile by OKB-52 in accordance with the Decree of the USSR Council of Ministers N 1149-592 of August 17, 1956. Launch boosters and launch containers are similar to P-5. The first stage of testing - stand 4A at the Balaklava test site from December 23, 1959 to July 1960 (without radio equipment), the second stage - the Severny test site (Nenoksa settlement west of Severodvinsk) from July to December 1960. Until December 1962, the Antey control system was improved during the tests. From July to October 1963, tests were conducted from the Project 675U SSGN. From October to December 1963, test launches were conducted from the Project 651 and Project 675 submarines. By the Decree of the USSR Council of Ministers of June 24, 1964, the P-6 missile was accepted into service with the USSR Navy for the Project 651 and Project 675 submarines.

The P-6 missile system was created as an integral part of a system consisting of a missile system, US-A and US-P spacecraft for receiving information from the waters of the World Ocean, a central information processing and distribution center, a target designation generation center and their transmission to the firing submarine ( [source](#) ).



A P-6 missile on display at the Black Sea Fleet Museum, Sevastopol, February 2004 (photo Black Sea, <http://forums.airbase.ru> )

Author: [DIMMI](#)

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### Wasserfall / P-101

**DATA AS OF 2022 (standard replenishment)**

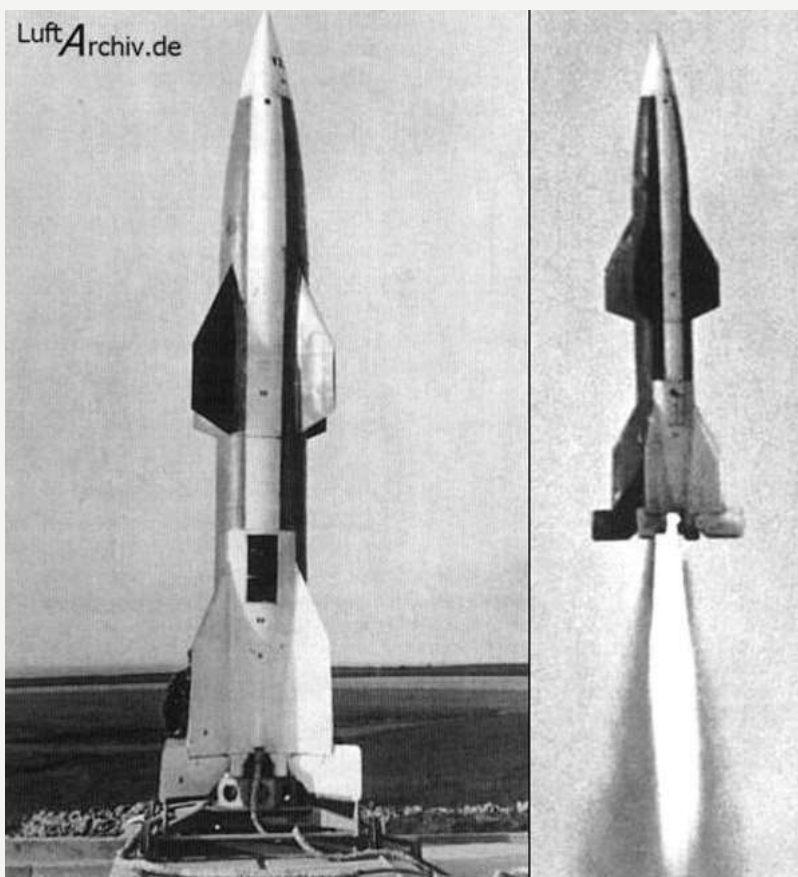
**Wasserfall C2 W1 / W5 / W10**

**R-101 / R-101B / R-102**

★★★★

Surface-to-air missile / ballistic missile / Navy ballistic missile. After the end of the Great Patriotic War, on May 13, 1946, the USSR Council of Ministers adopted Resolution No. 1017-419 "Questions of Rocket Armament". This Resolution for 1946-1948 set the tasks of complete restoration of technical documentation and samples of German anti-aircraft guided missiles; restoration of laboratories and stands with all the equipment and devices necessary for conducting research and experiments on Wasserfall missiles; training of Soviet specialists who would master the design of missiles, testing methods, technology for the production of parts and components and assembly of missiles. Work on captured Wasserfall anti-aircraft missiles under the index R-101 was carried out by Department No. 4 of the Special Design Bureau of the Scientific Research Institute-88 (future OKB-1 of the Scientific Research Institute-88), chief designer - E.V. Sinilshchikov.

The Wasserfall C2 guided anti-aircraft missile was created in Germany under the general supervision of Werner von Braun using the technological achievements of the V-2 project, chief designer - Walter Dornberger. The development of the SAM concept began in 1941. The contract for the creation of the missile was concluded on November 2, 1942. At the same time, requirements for the missile were issued. It was planned to ensure the probability of hitting bomber-type targets of at least 50%. Technical design was carried out in 1943. The first (unsuccessful) launch of the missile took place on February 29, 1944. At the same time, preparations for serial production of the missile began, but serial production was never established by the end of the war, although it was planned to produce 5,000 missiles. The first modifications of the W1 and W5 missiles differ significantly in size and performance characteristics from the last modification W10. In March 1945, during tests, the missile reached an altitude of 16 km and showed a speed of 780 m/s. Data on the possible combat use of the Wasserfall SAM is most likely incorrect. Some researchers believe that no more than 50 missiles were launched in total ( *source - Burgess E.* ), others ( *source - Book on 658 ZRP* ) report that protocols of 40 experimental missile launches were discovered, of which only 14 were successful.



On the launch pad and in flight, the Wasserfall C2/W5 rocket, Peenemünde test site ( <http://www.luftarchiv.de> ).



Author: [DIMMI](#)

Created: 13.01.2013 10:16:41

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## Atlant / Atlant-1MK

DATA AS OF 2022 (standard replenishment)

**"Atlant" / "Atlant-1" / "Atlant-1MK"**

★★★★

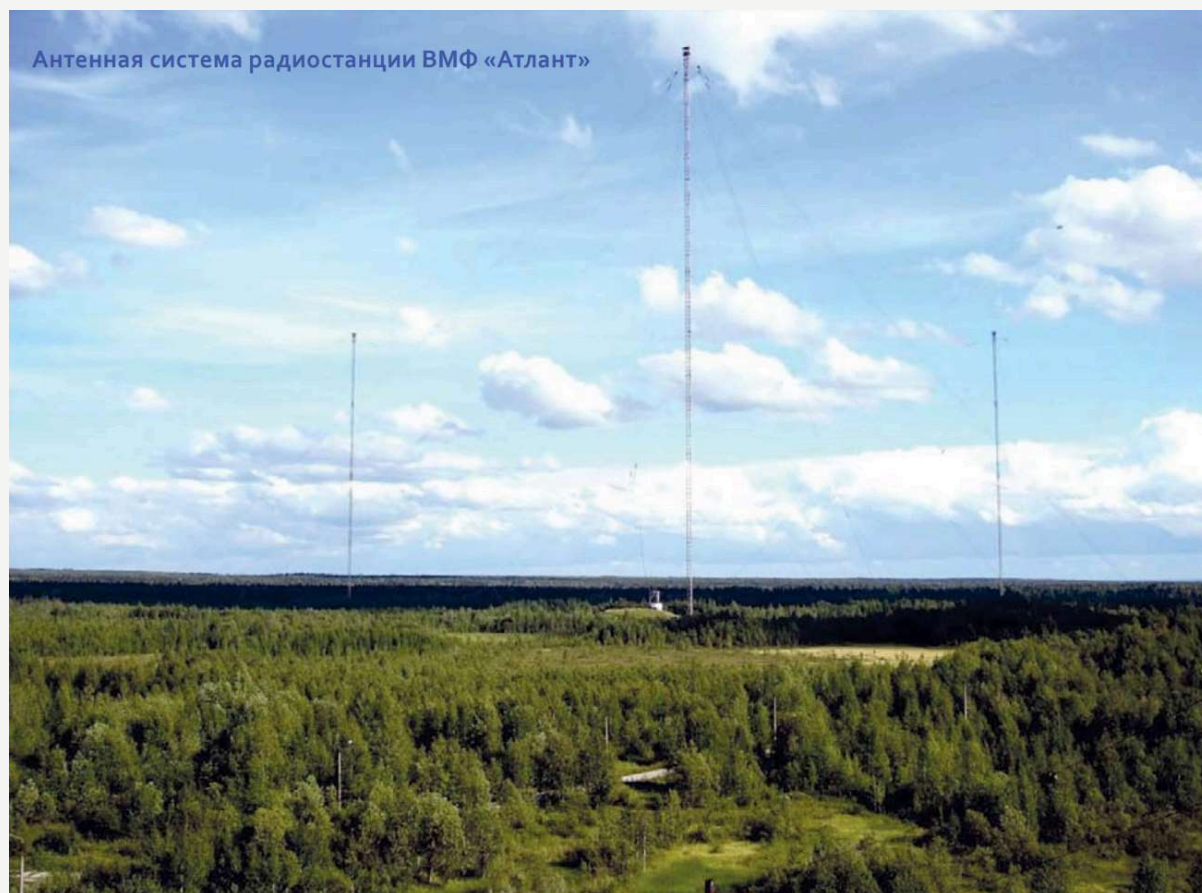
A radio station operating in the ultra-long wave range (ULW). It was used to communicate with submarines of the USSR Navy submerged in the world's oceans. The main organizational and technical solutions for the creation of such a radio station were developed and proposed by the Navy Communications Research Institute with the participation of professors of the Naval Academy, future academicians of the USSR Academy of Sciences A.I. Berg and A.N.

The first experience in the construction of powerful ULF radio stations in the Soviet Union was the installation of a captured German 1000 kW ULF radio station "Goliath" in the vicinity of the city of Gorky, which was put into operation at the end of 1952. Based on the experience gained, NPO Komintern (now JSC "RIMR") was instructed to create the first domestic ULF radio station. Already in the late 1950s, in cooperation with a number of design institutes, the 1000 kW Hercules VLF radio transmitter (chief designer K.V. Ryzhkov) was developed and manufactured; it was installed in 1962 in the Khabarovsk area. Over the next 12 years, three more VLF radio stations were built on the basis of the Hercules transmitter, installed in the areas of the cities of Vileika (1964), Arkhangelsk (1970) and Frunze (1974). By the mid-1970s, the Navy had a network of powerful VLF radio stations that provided submarine control in virtually all areas of the World Ocean.

On March 28, 1961, the USSR Minister of Defense made a decision to study the issue of providing communications and control of submarines during their operations in the Arctic zone. On March 30, based on this decision, the Commander-in-Chief of the Navy S.G. Gorshkov approved the submission for the selection of a site for the construction of a 1000 kW VLF radio station for communication with submarines (object DM-6), and on June 2, 1961, he signed order No. 0142 "On the appointment of a commission to survey the areas of the Arkhangelsk and Vologda regions." The commission was headed by Rear Admiral P.V. Galkin, head of the communications and surveillance department of the Northern Fleet. The commission conducted a survey of four sites in the Arkhangelsk and two in the Vologda regions. As a result of studying materials on the geology and geophysics of the soils of the Arkhangelsk and Vologda regions, surveying the sites on site and coordinating them with interested organizations and departments, the commission recommended for construction a site located 60 km from Arkhangelsk on the right bank of the Northern Dvina River, two kilometers from the water's edge and three kilometers from the village of Vozhderma. On May 23, 1964, at a meeting of the Central Committee of the CPSU and the Council of Ministers of the USSR, Resolution No. 445-179 "On the construction of a VLF radio station in the area of the city of Arkhangelsk" was adopted.

The first radio station "Atlant" was built in 1970. In April 1970, the radio station "Atlant" provided communication with submarines during the maneuvers "Okean-70". On April 18, 1970, the facility was accepted into service by the USSR Navy. On May 27, 1970, the Commander-in-Chief of the Navy approved the state acceptance certificate for the "Atlant" facility. After being put into operation, the radio station provided control of submarines in the seas of the Arctic Ocean and in the Atlantic. It was an element of the general system for transmitting signals of a single time, ensuring their delivery to consumers according to the established program.

In 2004, a deep modernization of the facility began, during which a significant amount of work was carried out. The cooling system became reliable, more efficient and compact, but the main modernization affected the radio transmitting device - the "heart" of the radio station. The transfer of the radio transmitting device to work in the "key" mode allowed to significantly increase the efficiency of the RPDU and reduce operating costs. In 2007, the radio station modernization was completed. The updated object with the RPDU "Atlant-1MK" again took up combat duty.



Antenna system of the radio station "Atlant" (Military History Journal, No. 7 / 2022)

Author: [DIMMI](#)

Created: 08.10.2022 11:26:38

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## Complex 3K-22 Zircon / Zircon-S, missile 3M-22 - SS-NX-33

DATA AS OF 2022 (standard replenishment)

**Complex 3K-22 "Zircon" / "Zircon-S", missile 3M-22 - SS-NX-33**

★★★★

Inter-service missile system with a hypersonic missile/anti-ship missile for operational use. According to available information, the system is being developed

by NPO Mashinostroyeniya ( [source](#) - *Annual report*, p. 15 ). The first statements about the system's development in the media date back to February 2011. There was also an officially unconfirmed assumption that the export version of the Zircon missile is the [BrahMos-II](#) anti-ship missile . Until 2012, there was also a hypothesis that the complex is the successor of the [Bolid](#) complex developed by the same NPO Mashinostroyeniya.

In 2011, a group of leading designers was organized in NPO Mashinostroyeniya as part of Directorate 15-51 on the 3M-22 topic with Sergei Bunakov, Denis Vitushkin, Yuri Vorotyntsev and Alexey Naydenov ( [source](#) ). In the same 2011, a preliminary design of the Zircon-S complex was developed, and, accordingly, preliminary designs of the complex's subsystems. Part of the developments - Zircon-S-ARK and Zircon-S-RV - were carried out by the structural division of KTVR - UPKB Detal ( [source](#) ). As of 2011, the organization of serial production of Zircon missiles in the coming years is planned at PO Strela (Orenburg, [source](#) - *Annual report*, p. 15 ). The missile complex is planned to be completed by 2020.

*According to the analysis of information on the topic for the second half of 2012, it was assumed that the Zircon topic was either closed or changed. There was no actual confirmation of this assumption, but it is possible that it was the difficulties with work on the topic for technical reasons that could have caused the Government's proposal to merge the Raduga Design Bureau with NPO Mashinostroyeniya to organize work on hypersonic vehicles.*

May 25, 2013. The media reported ( [source](#) ), that the development of the complex continues according to plan, but during 2012 there was a pause caused by technical problems. There is no direct connection with the reorganization of work on hypersonics and the situation with the topic of R&D or R&D "Zircon". "Currently, we are considering the concept of development of hypersonic technologies, which introduces the classification of hypersonic vehicles, the priority of development of various technologies and materials for hypersonic vehicles. The main direction of the first stage, naturally, is the development of the system that we have already tested. The remaining directions are planned as experimental with the creation of demonstrators. But, the existing reserve in them is quite consistent with the world level. No less important issue than the creation of technologies, materials and demonstrators, now is the development of another concept - the Concept of combat use of hypersonic weapons systems. It is necessary to answer the question - why are such systems needed, how should they be used, in what forms and methods, what goals are planned to be achieved as a result of their use. And the main question - what is the uniqueness of such systems and what problems can they solve that cannot be solved by existing weapons systems."

*The data is hypothetical and at best approximate. Sources are given. Identification of the 3M-22 missile - [source](#) . Mention of the 3K-22 index - [source](#) . [Source](#) of the Western designation SS-NX-33.*



Launch of the 3M-22 Zircon missile from the Admiral Gorshkov frigate, Project 22350, 10/06/2020 (video frame from the Russian Ministry of Defense).

Author: [DIMMI](#)

Created: 08.02.2013 00:23:01

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## [Caliber-M \(project\)](#)

**DATA AS OF 2022 (standard replenishment)**

**Kalibr-M missile (project)**



A long-range sea-based cruise missile. The development of a modernized version of the Kalibr cruise missile has been underway at the research and development stage at the Novator Design Bureau (Yekaterinburg) since at least 2018 ( [source](#) ). The missile is being developed with two types of warheads - nuclear and non-nuclear. It is designed to destroy ground targets. The creation of the missile is included in the 2018-2027 weapons construction program and, accordingly, should enter service by 2027.

The first carriers of the Kalibr-M cruise missiles will be the Voronezh and Vladivostok submarines of the Yasen-M project, laid down on July 20, 2020 at Sevmash ( [source](#) ).

Author: [DIMMI](#)

Created: 11.01.2019 23:10:49

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## [project 11551 Fregat-M](#)

**DATA FOR 2020 (in progress)**

**Project 11551 "Fregat-M" - UDALOY-II**  
**"Admiral Chabanenko"**



1st rank destroyer / large anti-submarine ship. The ship was developed on the basis of the large anti-submarine ship project [1155 "Fregat"](#) by the Severny Design Bureau (Leningrad), the chief designer of the project is V.P. Mishin.

In 1982, in the Severnoye Design Bureau, under the leadership of Chief Engineer A. A. Terentyev and Chief Designer of Project 1155 V. P. Mishin , an initiative study was carried out to increase the striking power of the ship of Project 1155. It was proposed to replace the launchers of the Rastrub anti-submarine missile system with the launchers of the Moskit anti-ship missile system, and it was also proposed to equip the ship with a new anti-submarine system, Vodopad, whose missiles could be launched from torpedo tubes ( [source](#) - *Yukhnin* ). Apparently, at the suggestion of the Severnoye Design Bureau of the USSR Navy, a tactical and technical assignment for the design of the ship was developed , which was supervised by the Commander-in-Chief of the



USSR Navy S. G. Gorshkov. The general idea of the modernization was to eliminate the shortcomings of the BPK Project 1155 - the absence of an anti-ship missile system and the relative weakness of air defense systems.

The USSR shipbuilding program planned to build 10 ships of Project 11551, but by December 1991, only two ships had been laid down at the Yantar Shipyard, and an order had been issued for two more ships of the project. The lead and only ship of the project, Admiral Chabanenko, was laid down in 1989, launched, according to various sources, on 16.06.1992 or 14.12.1992, and after completion in 1995, began sea trials, which dragged on until 1998. The ship was handed over to the Navy in 1999. The order for the remaining ships of the project was cancelled in 1993.



Large anti-submarine ship/destroyer "Admiral Chabanenko" project 11551, 06.06.2007 (photo from MVM archive, <http://forums.airbase.ru/>).

Author: [DIMMI](#)

Created: 18.06.2020 18:37:03

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## pr.58 - KYNDA

DATA FOR 2020 (in progress)

Project 58 - KYNDA

"Grozny"

"Admiral Fokin"

"Admiral Golovko"

"Varyag"

★★★★



Missile cruiser (RKR) of the 1st rank / missile destroyer. The design of the world's first missile destroyer under Project 58 was started by TsKB-53 (chief designer of the project V.A. Nikitin, designers during construction - A.L. Fisher and V.G. Korolevich) in accordance with the Resolution of the Council of Ministers of the USSR No. 1190-610 of 25.08.1956 on the creation of a surface ship with new types of weapons. In October 1956, assignments were issued for the development of the M-1 "Volna" air defense missile system and the P-35 anti-ship missile, which became the main combat systems of the new ship. The tactical and technical assignment for the design of the ship was approved by the Decision of the Navy and the Ministry of Shipbuilding Industry No. 1558 dated 07.12.1956. The development of the preliminary design of the ship was started by TsKB-53 by order No. 178772 of the Shipbuilding Directorate of the USSR Navy dated 17.12.1956. The main elements of the tactical and technical assignment for the development of Project 58 were approved by Resolution of the Council of Ministers of the USSR No. 483-238 dated 30.04.1957.

The main purpose of the ship is to combat large ships and naval groups of a potential enemy, including aircraft carrier groups.

The preliminary design was presented on 29.06.1957. TsKB-53 developed several versions of the preliminary design of the ship. The best version was recognized as the layout with a long forecastle and two superstructure skeletons with two tower-like masts. For the first time on a ship of this class, it was envisaged to accommodate a flagship command post (FCP), intended to coordinate the actions of a group of ships in the use of strike weapons and the organization of air defense. The command posts (FKP, GKP and BIP) were located not in the superstructure, but on the lower deck of the ship. On August 17, 1957, the preliminary design of the ship was approved by the decision of the Commander-in-Chief of the USSR Navy No. 779, agreed upon with the USSR Ministry of Shipbuilding. On September 7, 1957, the Shipbuilding Directorate of the USSR Navy issued order No. 95619 for the development of the technical design for the ship of Project 58. The technical design was submitted to TsKB-53 on March 31, 1958 and approved on August 15, 1958 by decision No. S-8/001896 of the Navy and the State Shipbuilding Committee of the USSR Council of Ministers. The main elements of the technical design of Project 58 were approved by Resolution of the USSR Council of Ministers No. 1053-502 of September 18, 1958. Finally, on September 1, 1958, TsKB-53 began developing the working design and issuing technical documentation for Project 58.

The initial plans called for the construction of a series of 16 ships of the project, but by 1960 a decision was made to build only 4 ships. The metalworking for the hull of the lead ship of the project began at the Zhdanov Shipyard in Leningrad on April 1, 1959. The lead ship of the project, Grozny, was laid down at the Zhdanov Shipyard in Leningrad (now Severnaya Verf) on February 23, 1960, launched on March 26, 1961 with a technical readiness of 58.6%, and handed over to the Navy after trials on December 30, 1962. During the State trials, the lead ship of the project covered 16,679 miles in 1,171 sea hours. A total of 4 ships of the project were built.

On July 22-25, 1962, during the Kasatka exercises, missile launches were conducted in the Northern Fleet from the destroyer Project 58 Grozny, which was still undergoing testing. The launches were observed from the cruiser Admiral Ushakov Project 68bis by the General Secretary of the CPSU Central Committee N.S. Khrushchev. After the successful missile launches, the commander of the Northern Fleet, Admiral Kasatonov, started a conversation about how changing the rank of the ship would improve the ranks and position of the officers serving on the ship. N.S. Khrushchev agreed with this and the ship became a cruiser ( *historical* - *Shirokorad* ). The decision was announced on November 4, 1962.

All ships of the project were withdrawn from the Fleet's combat composition in 1990-2002.



Missile cruiser Grozny, project 58 - KYNDA after modernization, Mediterranean Sea, 10/30/1985 (photo - US NAVY, <http://www.dodmedia.osd.mil/> ).

Author: [DIMMI](#)

Created: 09,05,2020 11:50:24

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### Purga, rocket 80R

**DATA AS OF 2018 (standard replenishment)**  
**Purga complex, 80R missile**



Anti-submarine missile system with an unguided ballistic missile. The development of the complex was initially carried out by GSKB-47, chief designer - S.S. Berezhkov, but was later transferred to NII-1 GKOT. The creation of the complex was carried out on the basis of the Resolutions of the Central Committee of the CPSU and the Council of Ministers of the USSR of June 20, 1958 and No. 111-463 of October 13, 1960 "On the development of new anti-submarine systems". The development of the complex was carried out starting in 1960, the creation of the complex reached the testing stage, but was terminated in 1964.

Author: [DIMMI](#)

Created: 23,11,2018 21:37:20

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### RPK-2 Vyuga-65, 81RT missile

**DATA AS OF 2018 (standard replenishment)**  
**RPK-2 "Vyuga-65" / D-90T, 81RT missile**



Anti-submarine missile system for use from submarines. In terms of ideology, the system is similar to the Subrock anti-submarine system (USA) and was created by analogy with it. The development of the system was initiated by Resolution of the Council of Ministers of the USSR No. 111-463 of October 13, 1960 "On the creation of new anti-submarine missile systems". The development was initially carried out under the code D-90 in OKB-9 (Sverdlovsk), General Designer - Fyodor Fyodorovich Petrov, Lead Designer - N.G. Kostrulin. The 533 mm caliber missile version received the designation D-90S ("special charge"), the 650 mm caliber version - D-90T ("torpedo"). In OKB-9, a preliminary design of a missile with lattice rudders and an engine for the missile were developed, and experimental studies were conducted - positive results were obtained in tests of movement in the initial section, in the transition section, and in the air section ([source](#)). The plan for conducting experimental studies and developing a preliminary design for the Vyuga complex (subject B-XII-54) was approved on 31.01.1961 by the Military-Industrial Complex under the USSR Council of Ministers. The development of the nuclear warhead was carried out by VNIIA (chief designer A.A. Brish), the development of the missile control system was carried out by NII-25 (later renamed NIIP, chief designer A.S. Abramov). The development of the V-1 test rigs (a redesigned PSD-4 floating rig from the R-21 missile) and an experimental submarine for testing was carried out by SKB-143 (chief designer A.V. Kuteinikov).

Two types of missiles with different performance characteristics were created for the complex: for launching from 533 mm torpedo tubes "Vyuga-53" / 81RA and for 650 mm TA - "Vyuga-65" / 81RT. Decoding the designations: "RA" - nuclear missile, "RT" - missile with torpedo. First of all, the development of the "Vyuga-65" complex was started as a more complex one.

The test schedule for the 533 mm caliber missile was adopted in 1963 after the approval of the draft design. On July 20, 1964, by decision of the Military-Industrial Complex under the Council of Ministers of the USSR, due to unsatisfactory results of work on the complex, together with a group of designers (OKB-9-II), they were transferred to OKB-8 (Sverdlovsk, later - OKB "Novator"), L.V. Lyulyev was appointed chief designer of the complex. The transfer of the topic to OKB-8 was confirmed by the decision of the Military-Industrial Commission of January 28, 1965.



Вьюга (Вьюга-53)



Вьюга-65



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Missile 81RT (bottom) of the Vyuga-65 complex (drawing by A.V. Karpenko, <http://bastion-karpenko.ru>)Author: [DIMMI](#)

Created: 18.11.2018 09:41:41

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## pr.09787 - DELTA-IV STRETCH

DATA FOR 2021 (standard update)

pr.09787 - DELTA-IV STRETCH

BS-64 "Podmoskovie" / pr.1083KM complex



Special-purpose nuclear submarine (SPNS) / research submarine (RPS). The submarine-carrier of deep-sea nuclear power plants (DSP) was developed on the basis of the SSBN of Project 667BDRM by the Central Design Bureau of Marine Engineering "Rubin" by order of the Main Directorate of Marine Engineering of the Ministry of Defense of the Russian Federation. In 1999, the SSBN K-64 of Project 667BDRM - DELTA-IV (plant No. 381 / 07381, laid down on 18.12.1982 at PO "Sevmash") was delivered to the wall of the CS "Zvezdochka" (Severodvinsk) for further repairs with alteration according to Project 09787.

On February 26, 2004, the Rubin Central Design Bureau for Marine Engineering signed contract No. 52-04 for the development of the Grunt-1 design project, presumably to create an equipment complex for the submarine Project 09787 ( [source](#) ). In the same year of 2004, within the framework of the federal target program "World Ocean", the subprogram "Creation of technologies for the development of resources and spaces of the World Ocean" was adopted, within the framework of which design and engineering solutions were developed for the use of a research submarine (RIS) in the interests of shelf development (work with potentially hazardous underwater objects - PPOO, under-ice geological exploration, etc.). Work on the RIS was used in the development of the on-board research complex (KNIB) project of order No. 381 (SSN Project 09787) and in the work that had begun on preparing a draft resolution of the Government of the Russian Federation on the use of RIS for commercial purposes ( [source](#) ).

On February 8, 2008, the Zvezdochka Design Bureau and the Rubin Central Design Bureau of Marine Engineering signed contract No. 178-07/600 for the release of working design documentation for project 09787, with a deadline of December 2013, and a contract amount of 348.6 million rubles ( [source](#) ). Contract No. 85-08/600 for technical support for the conversion of order No. 381 was signed on December 13, 2008, with a deadline of December 2015, and a contract amount of 443.7 million rubles ( [source](#) , *Rubin Central Design Bureau of Marine Engineering, annual report for 2012* ). As of 2012, the submarine is located in workshop No. 15 of the Zvezdochka Design Bureau with its missile compartment cut out; conversion work is underway on the boat. The estimated completion date is 2014-2015. In 2015, the conclusion of the Scientific and Technical Center "Rumb", JSC "USC", and the Ministry of Industry and Trade of the Russian Federation on the price level for the submarine conversion was received for order No. 381 "Podmoskovie". The conclusion was sent to the Ministry of Defense of Russia to revise the contract price (source - Annual Report of the CS "Zvezdochka" for 2015).

On August 11, 2015, the BS-64 "Podmoskovie" submarine was withdrawn from the slipway of the CS "Zvezdochka". The transfer of the submarine to the Fleet was expected at the end of 2015, but in 2015 the delivery of the submarine to the Fleet is scheduled for 2016 (source - Annual Report of the CS "Zvezdochka" for 2015). On October 22, 2016, the BS-64 Podmoskovie nuclear submarine left Severodvinsk for the first stage of sea trials in the White Sea ( [source](#) ). After sea and state (November-December 2016) tests, the submarine was transferred to the Fleet on December 26, 2016, and after the transfer to the Fleet, the boat will probably join the 29th separate submarine brigade of the Northern Fleet (Olenya Bay).

In December 2017, tests of the modernized deep-water complex of Project 1083KM were conducted, presumably with the carrier submarine of Project 09787 BS-64 "Podmoskovie" ( [source](#) ).

Return of the submarine project 09787 BS-64 "Podmoskovie" from the first sea trials, Severodvinsk, 11/12/2016 ( <http://zvezdochka-ru.livejournal.com/> ).

Author: [DIMMI](#)

Created: 06.09.2013 01:17:43

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## pr.971 - AKULA

**DATA FOR 2021 (standard update)****pr.971 / 09710 "Bars" / "Pike-B" - AKULA****Project 971, Project 9711 / 09719 "Irbis" - Improved AKULA****Project 971 / Project 971U - AKULA-II****Project 971 / Project 971M (K-335) - AKULA-III****Project 971M - AKULA-IV**

★★★★★



Multipurpose nuclear submarine. Development of the Project 971 SSN was started by SKB-143 "Malakhit" (Leningrad, Chief Designer Georgy Nikolaevich Chernyshov, since August 1976, after 1997 - Yu.I. Farafontov) according to the 1972 technical specifications "development of a large nuclear multipurpose submarine of the 3rd generation" as an analogue of the Project 945 SSN with the replacement of titanium alloys with steel in the design. The design uses the developments of the low-noise SSNs of Projects 991 and 958. A brief outline design (preliminary design) was developed by the beginning of 1976. The Krylov Central Research Institute took part in the development of the technical design, work on which was started by a joint decision of the Navy and the Navy on July 27, 1976 (especially in terms of reducing the noise level of the SSN). The chief designer's group was formed in August 1976.

Since 1968, the Krasnoye Sormovo plant began assembling the shore prototype of the project 971 submarine power compartments - the KV-1 test rig - at NITI. Since 1972, work on the prototype construction was continued by LAO. The construction of the unit was completed on December 25, 1975, and the final commissioning, due to a number of faults discovered during hot tests, occurred on December 24, 1976. The automatic control system for the power plant was assembled by representatives of NPO Aurora ( *history* - Shumakov ).

**Design** : the technical design of the submarine was developed from September 1976 to May 1977. One of the main tasks facing the developers was to keep the submarine within the displacement declared in the draft design. The technical design was reviewed by the 1st Central Research Institute of the USSR Ministry of Defense (shipbuilding) in June 1977 and approved on September 13, 1977, with the reservations that during the development of drawings and construction it was necessary to ensure an even greater reduction in noise, the placement of SGPD launchers, and the placement of CRBDs with the possibility of use against coastal targets. After receiving information about the innovations on the American Los Angeles-class SSN, which resulted in the installation of a sonar with digital signal processing, reducing the impact of the SSN's own noise, and also taking into account the wishes of the Navy leadership to equip the SSN with the Granat CRBD (Resolution of the USSR Council of Ministers dated May 26, 1978), the design was additionally revised to install the Skat-3 sonar, which required a change in the hull design. The project was delivered in 1980.



PLA Chakra / K-152 "Nerpa" pr.9711 - Improved AKULA on the way to India, end of March 2012 ( <http://www.militaryphotos.net> ).

Author: [DIMMI](#)

Created: 06.10.2009 19:44:50

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## pr.1910 - UNIFORM

**DATA FOR 2020 (standard update)****pr.1910 / pr.19100 "Kashalot" - UNIFORM****AC-13****AC-15****AC-33**

★★★★★



Nuclear deep-sea station of the 1st rank / special nuclear submarine / deep-sea technical facility. The design of nuclear deep-sea stations for performing special tasks on the bottom of the World Ocean was started by the Resolution of the Council of Ministers of the USSR of 1972 on the creation of an autonomous nuclear deep-sea station (AGS) of project 1910 "Yauza" (later replaced by "Kashalot") and a complex of project 1851. The main contractor for the projects was determined to be the Central Design Bureau "Volna" of the USSR Ministry of Shipbuilding Industry. For project 1910, the chief designer is E.S. Korsukov, deputy - S.M. Bavin. Later, by order of the Minister of Shipbuilding Industry, a special design group was created under the leadership of Yuri Mikhailovich Konovalov to design the AGS of project 1910. In 1974, SPMB Mashinostroeniya and TsPB Volna were merged into SPMBM Malakhit, which was tasked with maintaining the autonomous AGS of Project 1910 and the complexes of Project 1851 and later Project 1083. Specialists from the Academician Krylov Central Research Institute, TsNIIKM Prometey (structural materials), TsNIITS, TsNISET, LPO Elektrosila and others took part in the development of the AGS.



In 1972, the Leningrad Admiralty Association (Leningrad) began preparations for the construction of AGS of Projects 18510 and 1910. In August 1976, the first section of the lead order of Project 01401 was manufactured in Shop No. 9. The official laying of the AGS was on 20.11.1977. In 1978, the formation of the hull of the order was completed and hydraulic tests were performed. In the fall of 1982, the AGS was launched (25.11.1982) and 6 months later the first tests of the nuclear power plant were conducted on the boat (May 1983). In the fall of 1983, the AGS was sent to continue testing at the LAO acceptance base in Severodvinsk. The experience gained during the creation and testing of the lead AGS of Project 1910 was used in the creation of the AGS of Project 1851. The lead AGS of the project was accepted by the Navy for trial operation on 31.12.1986. Construction of the series of three boats was completed on 16.12.1994 with the transfer of the third boat to the Navy. All Project 1910 submarines served or are serving in the Northern Fleet as part of the 29th separate submarine brigade of the Navy in Olenya Bay.

In October 1976, in accordance with the Order of the Commander-in-Chief of the USSR Navy, a detachment of hydronauts was formed to operate deep-sea stations, modeled on the cosmonaut detachment. Candidates for the detachment had to: serve on a submarine of the USSR Navy for at least 5 years, be a member of the CPSU and pass a medical commission on the requirements that cosmonauts had to meet. The formation of the detachment began on the territory of the 39th brigade of submarines under construction on Rimsky-Korsakov Street in Leningrad. The first officer of the detachment was Platon Aleksandrovich Chebotayev, who formed the detachment and was appointed deputy commander of the detachment. Later, the detachment was given a small town on the Shkipersky Channel, where physicists had previously studied the effects of nuclear radiation on living organisms. The detachment existed there until 1992. In the summer of 1977, 23 officers of the USSR Navy were recruited for training at the 15th Central Scientific Research Institute, from which two crews of the experimental AS-13 AGS (Project 1910) were to be formed. The recruited officers formed the 6th department of the 15th Central Scientific Research Institute, which organizationally reported to the head of the 5th department, Captain 1st Rank E.M. Mazulnikov. In 1979, the 29th separate submarine brigade of the Northern Fleet began to form in Olenya Bay for the basic maintenance of AGS and the operation of their carriers in the Northern Fleet. In 1980, the first hydronauts of the detachment began operating the towed complex "Seliger" ( [source](#) , [source](#) ).



Nuclear deep-sea station AC-33 pr.1910 - UNIFORM. Presumably 1990s (photo - US NAVY, <http://www.dodmedia.osd.mil/>).

Author: [DIMMI](#)

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## Complex 2M39 Poseidon / OKR Skif - KANYON

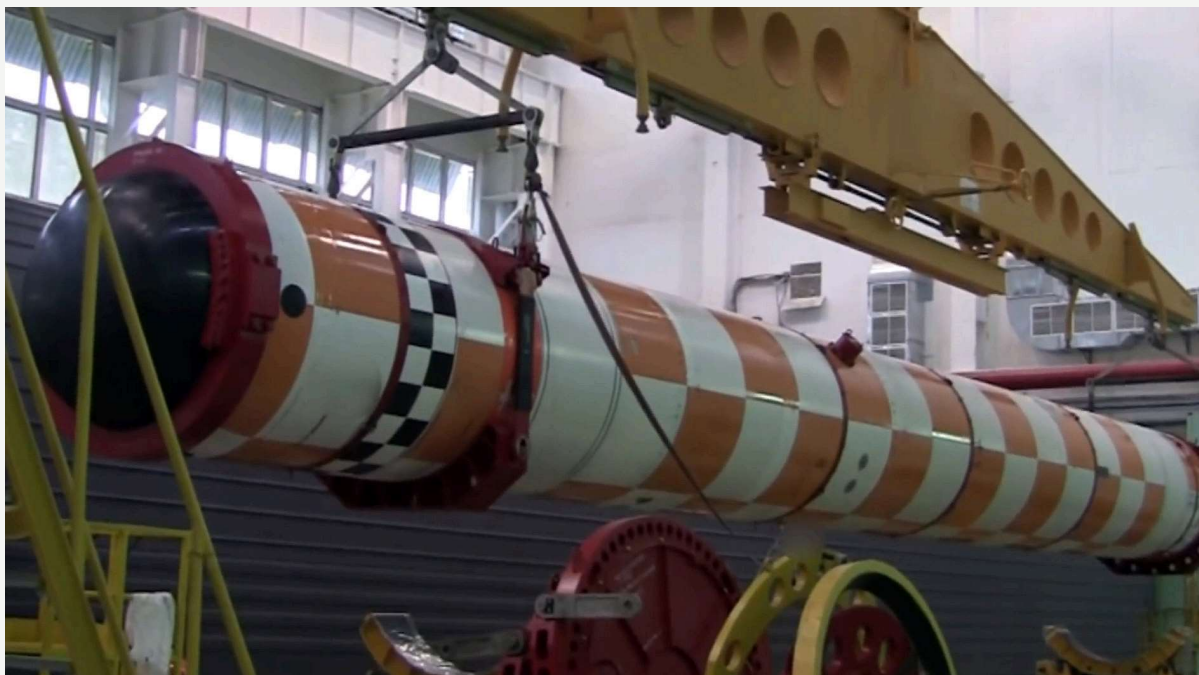
### DATA AS OF 2020 (standard replenishment)

#### 2M39 Poseidon Complex / Skif R&D Project - KANYON

Self-propelled underwater vehicle / unmanned underwater vehicle / boat-based robotic underwater vehicle / marine robotic complex (MRTC). The development of the naval strategic weapons system on the topic of the Skif R&D Project was and is being carried out under the general management of the Rubin Central Design Bureau for Marine Engineering (St. Petersburg). The developer of the launch complex is the Makeyev State Research Center (Miass). The initial work on the Spilit R&D project was successfully completed by Department No. 118 of the Makeyev State Research Center together with the Rubin Submarine Shipbuilding Design Bureau in Leningrad in 1988-1990. Following a competition in the early 1990s, the GRC began full-scale development of the Skif R&D project (2M39 underwater weapon system) under contract No. 334-92 dated June 5, 1992 with the Russian Ministry of Defense ( [source](#) ). In the late 1990s, the GRC, at the suggestion of the Rubin Central Design Bureau of Marine Engineering, was to become the lead organization for the creation of both the Skif product and the system, but this suggestion was not approved and the Rubin Central Design Bureau of Marine Engineering (probably) became the lead design bureau. The chief designer of the direction at the Makeyev GRC is A.P. Shalnev. The release of design documentation for the system began in 2005 (and was probably completed in 2008). Presumably, the production of experimental prototypes for the Skif R&D project began at the same time. In 2007-2009. In the Makeyev State Research Center, tests of units and assemblies are carried out on a vacuum-dynamic test bench as part of the R&D project. In 2008, strength tests of units, tests in a rig simulating hydrodynamic loads, and functional tests were carried out. The first successful tests of prototypes of the product as part of the Skif R&D project were carried out by launching a mock-up of the product in October 2008. Tests of mock-ups of prototype products are carried out from the experimental submarine B-90 Sarov, [project 20120](#) , with the involvement of the rescue vessel Zvezdochka, [project 20180](#) , with a special barge of the floating test complex (PIC), project 20210. Also, methods for searching for and lifting payload mock-ups to the surface are being developed using the PIC and the rescue vessel Zvezdochka without the involvement of the submarine B-90 Sarov - by immersing the prototype product and throw-away mock-ups, followed by launching from an underwater position without the standard launch of their launcher. In January-

October 2015, on the experimental submarine B-90 "Sarov" [project 20120](#) with the participation of the FTsDT "Soyuz" test launches of the product 3P27 with the replacement of the mass of the product on the submarine were carried out ( [source](#) ). Presumably, we are talking about the prototype of the product 2M39 for testing with the submarine "Sarov". According to Western estimates, several more years will pass from the testing of the prototype to the combat model of the KANYON system (2015, [source](#) ). Our forecast is that the testing of the 2M39 system may last until 2025 and even longer. ★★★★★

*The material uses data only from open public sources. Identification of the ROC "Skif" and the unmanned underwater vehicle known in the West as KANYON is presumptive based on information from open sources: [source1](#) , [source2](#) . Identification of the index 2M39 according to [source3](#) .*



The 2M39 Poseidon unmanned underwater vehicle or its model being unloaded from a 2F39ZhST-01 transport car during testing at a testing site. Still from a video by the Russian Ministry of Defense published on 20.02.2019.

Author: [DIMMI](#)

Created: 23.05.2013 00:01:09

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## pr.777A "Kalina"

**DATA FOR 2020 (in progress)**

**R&D "Kalina-VMF"**

**pr.777A "Kalina"**

★★★



A project for a 5th generation non-nuclear submarine. The project is being developed by the Rubin Central Design Bureau. On March 18, 2013, the media reported that the Rubin Central Design Bureau had begun research and development work to determine the appearance of a new (fifth) generation non-nuclear submarine. On April 24, 2013, it was reported that the design of the submarine had begun - apparently, this was all about work on the preliminary design of the submarine. On November 5, 2013, the Admiralty Shipyards newspaper reported the name of the 5th generation non-nuclear submarine project - Kalina. On February 19, 2014, Vice-Admiral Alexander Fedotenkov stated that preparatory work was underway to design the submarine - apparently, this is the name of the research and development work ( [source](#) ). In fact, the Kalina-VMF R&D work was completed in December 2014 - as a result of the research work, a preliminary design for a multi-purpose non-nuclear submarine with two propulsion options - traditional and air-independent (AIP, [source](#) - *USC. Annual* ) was prepared.

According to USC's annual report for 2014, experimental and design work (R&D) on the creation of a new non-nuclear submarine was planned to begin in 2015. In an interview on 21.01.2016, Navy Commander-in-Chief Viktor Chirkov said that the design of the Kalina non-nuclear submarine was already underway. In 2019, design work on the submarine continues ( [source](#) ).

Serial production of non-nuclear submarines of the 5th generation is planned to begin no earlier than 2020 (statement by Russian Navy Commander-in-Chief Viktor Chirkov, 2013). In 2016, it was announced that construction of the lead submarine of the project could begin earlier - in 2018 at the Admiralty Shipyards ( [source](#) ). At the same time, on October 16, 2018, a USC representative stated in the media that construction of the submarine had not yet begun due to the lack of an order from the Russian Ministry of Defense ( [source](#) ).

On October 20, 2020, the submarine project number was named in the media for the first time - "777A Kalina" ( [source](#) ).





Model of the non-nuclear submarine project 677E "Amur-1650", which probably served as the starting point for the project 777A "Kalina" (ARMY-2015 Forum, photo by A.V. Karpenko, [source](#) ).

Author: [DIMMI](#)

Created: 20.03.2013 23:54:29

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### Complex P-800 / 3K55 Onyx / Yakhont - SS-N-26 STROBILE

DATA AS OF 2013 (standard replenishment)

P-800 / 3K55 "Onyx" complex, 3M55 / K-310 "Onyx" missile - SS-NX-26 / SS-N-26 STROBILE

3K55E "Yakhont" complex, 3M55E "Yakhont" missile - SS-N-26 STROBILE

Complex 3K55E "Yashma" (export version for submarines)

Complex "Yakhont-A" (aviation)

★★★★

Anti-ship cruise missile / unified anti-ship cruise missile. The USSR Council of Ministers resolution on the commencement of work on developing the missile was adopted on 05.06.1981. The draft design was developed and adopted by NPO Mashinostroyeniye (OKB-52 of V.N. Chelomey) on 10.03.1982. General Designer - G.A. Efremov, Chief Designer - V.A. Modestov ( [source](#) ). Since 1991, the missile development group has been headed by Chief Designer of the direction Vadim Merkulov ( [source](#) ). In 2011, a group of leading designers was organized on the 3M55 topic (with Sergei Bunakov, Denis Vitushkin, Yuri Vorotyntsev and Alexei Naidenov).

Testing of the anti-ship missile was supposed to begin in 1987, but in 1987 only a throw-out launch of the 3M55 missile was conducted from the Nakat missile ship of Project 1234.7, after which the missile ship was accepted into service. In 1991, technical documentation was released, production was mastered, and ground tests of the missiles were conducted. In the period from 1992 to 1998, tests of the underwater version of the Onyx anti-ship missile were probably conducted on the K-452 SSGN of Project 06704 (a modernized SSGN of Project 670M), but as of 2000 the tests have not been completed and the missile has not been accepted into service. In the surface version, tests were conducted on the Nakat missile ship of Project 1234.7 (see below), and in 1996 the complex was accepted into trial operation by the Russian Navy. In February 1998, an agreement was signed with India for the joint creation of the BrahMos missile system .

After long breaks, state tests on the Nakat missile system, project 1234.7, were completed by the end of 2002 and by the Decree of the Russian Government dated September 23, 2002, the 3M55 Onyx anti-ship missile was accepted into service with the Navy. The missiles have been manufactured at PO Strela (Orenburg) since 1999 ( [source](#) ). It differs from other OKB-52 developments in that it follows the "fire and forget" principle, "lo-hi-lo" flight profile and is universally applicable from any launch platforms (water, air, land).

The Onyx missile and system are intended for deployment on surface (export version "Yakhont") and underwater (export version "Yashma") vessels. The system was also known as the P-800 and P-100.



Launch of the 3M55 "Onyx" anti-ship missile system with the "Nakat" MRK pr.1234.7 ( <http://www.npomash.ru> ).



Anti-ship missile 3M55E "Yakhont" at one of the exhibitions ( <http://www.testpilots.ru> )

Author: [DIMMI](#)

Created: 22.01.2009 01:00:35

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### pr.19100 / PD-78

**DATA FOR 2019 (standard update)**

**pr.19100**

**PD-78**

★★★★



Special-purpose floating dock. Built by the Pallada shipyard (Kherson) in September 1985 and transferred to the Baltic (Kronstadt), from where it was transferred to the Northern Fleet. Factory number 18432 ( [source](#) ). The floating dock PD-78 was officially transferred to the Fleet in 1986. It is used as part of the 29th separate brigade (by 2018 - division) of submarines of the Northern Fleet of the Russian Navy (Olenya Bay) for servicing nuclear deep-water stations of various types. Departmental affiliation - GUGI of the Ministry of Defense of Russia.





Floating dock PD-78, Olenya Bay, presumably 2010-2014 ( [source](#) ).

Author: [DIMMI](#)

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